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ABSTRACT

The assumption that the learning of letter names in their proper sequence is a prerequisite for literacy can be questioned. There is disagreement over the value of early letter-name training. It is variously said to aid in letter or word discrimination, to aid in attaching sounds to letters, and to interfere with both of these tasks. An analysis of the letter names and of experimental and pedagogical evidence lends little support to the claims of letter-naming benefits. Only 16 English letter names begin with a sound which they represent, and of these, seven (the five vowel letters, plus c and g) do not begin with the sound introduced first in most reading programs. In several countries, including the United States, the Soviet Union, and Israel, letter-name knowledge has been found to interfere with learning to attach sounds to letters. But letter-name knowledge has also been shown to be one of the best single predictors of reading success, and no matter what can or cannot be shown experimentally about the utility of letter names, they are efficient labels for the letters and an inseparable element in the popular concept of reading instruction. A bibliography is included. (Author/VJ)

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LETTER NAMING AND LEARNING TO READ

REPORT FROM THE BASIC PRE-READING SKILLS PROJECT, AN ELEMENT OF THE READING AND RELATED LANGUAGE ARTS PROJECT

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CENTER FOR COGNITIVE LEARNING

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Theoretical Paper No. 31

LETTER NAMING AND LEARNING TO READ

Richard L. Venezky

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Report from the Basic Pre-Reading Skills: Identification and Improvement, Element of the Reading and Related Language Arts Project

R. L. Venezky, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

October 1971

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This Theoretical Paper is from the Basic Pre-reading Skills Project, an element of the Reading and Related Language Arts Project in Program 2, Processes and Programs of Instruction. General objectives of the Program are to develop curriculum materials for elementary and preschool children, to develop related instructional procedures, and to test and refine the instructional programs incorporating the curriculum materials and instructional procedures. Contributing to these program objectives, this element has two general objectives; (1) to develop tests for diagnosing deficits in skills which relate to reading, and (2) to develop a kindergarten-level program, including diagnostic tests and instructional procedures, for teaching basic prereading skills. Tests and instructional programs will be developed for visual and acoustic skills, including letter and letter string matching with attention to order, orientation and detail, and for auditory matching and blending.

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ABSTRACT

For about two thousand years educators assumed without question that learning the letter names in their proper sequence was a prerequisite for literacy. Learning the ABC's became synonymous with learning to read. But today there is disagreement over the value of early letter-name training. Some claim that it aids letter or word discrimination; some claim that it aids attaching sounds to letters, and some claim that it interferes with both of these tasks. An analysis of the letter names and of experimental and pedagogic evidence lends little support to the claims of letter-naming benefits. Only 16 English letter names begin with a sound which they represent and of these, seven (the five vowel letters, plus c and g) do not begin with the sound introduced first in most reading programs. In several countries, including the United States, the Soviet Union, and Israel, letter-name knowledge has been found to interfere with learning to attach sounds to letters. But letter-name knowledge has also been shown to be one of the best single predictors of reading success, and no matter what can or can not be shown experimentally about the utility of letter names, they are efficient labels for the letters and an inseparable element in the popular concept of reading instruction.

"What's in a name? That which we call a rose
By any other name would smell as sweet."

I
INTRODUCTION

In the midst of the warfare carried out over the last century on the battlefield of reading methodology has been the conflict over letter names: whether and when they should be introduced in the teaching of reading. For many years educators assumed without question that learning the letter names in their proper sequence was a prerequisite for literacy. Learning the ABC's became synonymous with learning to read. But today there is disagreement over the value of early letter-name training. Some claim that it aids letter or word discrimination; some claim that it aids attaching sounds to letters, and some claim that it interferes with both of these tasks. The purpose of this paper is to review this controversy through an analysis of the letter names, their application to the teaching of reading, and the experimental data offered for each viewpoint.

II
HISTORY OF LETTER NAMES

Both major Western alphabets, Roman and Cyrillic, are derived from the Greek alphabet, Roman by way of Etruscan before the common era, and Cyrillic directly from Ninth Century (A.D.) Greek.[1] The Greek alphabet, in turn, was borrowed from North Semitic around the end of the second millennium B.C. For North Semitic, of which the modern Hebrew alphabet is a direct descendant, the letter names are assumed to have existed prior to when the Greek alphabet was borrowed, since the Greek letter-names are also derived from North Semitic. From the Etruscans the Romans borrowed not only the alphabet but also the letter names, which subsequently, with the introduction of the Latin alphabet into England some time during the Sixth Century, formed the basis for the English letter names. "...the greater part of the Latin names of the letters, which have descended into English as into the majority of modern alphabets, were taken over from the Etruscans ..." (Diringer, 1968, Vol. I., pp. 419 f.). Thus we can assume for English that as soon as there were Roman letters for representing sounds, there existed names for the letters. [The runic alphabet, which was brought from the Continent by the Germanic tribes who were the earliest speakers of English, also had letter names at the time it was first used for writing English.]

The Modern Romance letter names are all derived from Latin, except, of course, those for non-Latin letters. Thus, j, which did not exist in the Classical Latin alphabet, is i lunga in Italian, but jota in Spanish. English ze is apparently a shortening, by analogy with be, ce, de, etc., of earlier zed, which though derived ultimately from the Greek zeta (cf. It. zeta; Sp. zeta, zeda), was not named in English until after the Norman Conquest. Cyrillic letter names were borrowed, for the most part, from Latin.

The ordering of the letters is also of great antiquity, being evidenced by various passages in the Hebrew Bible and by an early Eighth or late Ninth Century (B.C.) inscription found at Lachish, in what is now Israel. In addition, a Fourteenth Century (B.C.) Ugaritic tablet shows, among the 30 Ugaritic letters, the 22 North Semitic letters in exactly the same order as they have in modern Hebrew.

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[1] The discussion which follows is based primarily upon Diringer, 1968, Vol. I, and Gelb, 1952, with additional notes from the Oxford English Dictionary.

III
SEMANTIC AND PHONOLOGICAL FEATURES

Letter names for some alphabets are meaningful words (e.g., Hebrew beth, "house," gimel, "camel"), while for others, either meaningless forms, e.g., Finnish, Greek, or combinations of meaningful and meaningless words, e.g., English. Most letter names for both Western and Eastern alphabets are based upon the acrophonic principle whereby the sound most commonly assigned to the letter is the first sound of the letter name. This holds, for example, in Hebrew, Arabic, and Greek. In English, several names deviate from this principle; the name for h retains a sound no longer symbolized by the letter, that of w describes its origin from two u's, and y, a late addition to the English alphabet, neither its sound nor its origin. (According to the Oxford English Dictionary, the English name for y is "...of obscure origins." In the Romance languages, it is called "Greek i," e.g., Fr. "i grec," Sp. "i griega," while in German it is "i psilon"). In addition, f, s, and x and the sonant symbols l, m, n and r are composed of a checked vowel (/ɛ/ or /a/), followed by the sound symbolized.[2] The remaining consonant names in English are open syllable names based upon the acrophonic principle. However, of the 26 letters of English, 11 have at least two common pronunciations each: the vowels a, e, i, o, u; w and y, which can be either consonants or parts of vowels (e.g., beware: dew; beyond: grey); c and g as in city, cage, gym, and game; and s and x as in sign: resign, fix: exist. Four others have lower- frequency variants: d(dial: cordial), t(mat:nation); n(thin:think); and r(run:stir). Of the remaining letters, most have low-frequency variant pronunciations or can be silent, e.g., h as in hit and honest; z as in zip and quartz. In addition, there are consonant sequences which represent single consonant phonemes (ch, dg, gh, ph, rh, sh, th, tch) and wh which in some dialects represents a single sound and in others, two phonemes in the reversed order from the spelling.

These semantic and phonological features are summarized in Table 1, from which it can be seen that 16 English letters follow the acrophonic principle, while f, h, l, m, n, r, s, w, x, and y do not. It should be noted further, however, that the names for all five vowels plus those for c and g do not contain the sound which is traditionally introduced first for these letters in reading programs. This leaves only nine letters whose names begin with the sound used in initial reading.

Fourteen letter names are homophonous with common English words, although the meaningfulness of the names for a, i, o, and y is distinct from that of the others in that these are function words in contrast to the others which are content words. The names for l, m, and n are homophonous with infrequently used nouns (el is short for elevated railroad; em and en are printing terms, referring to units of space measurement within a printed line.) Whether or not to class "double u" as meaningful is debatable. Pronunciations shown in Table 1 are those which occur in at least 10% of the word types for the spellings, the words being derived from a 20,000-word corpus roughly equivalent to the Thorndike-Lorge list.[3]

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[2] On the Etruscan origin of the names for l, m, and n, see Diringer, 1968, I, p. 419.

[3] This corpus is described in Venezky (1967).

Table 1

Summary of the English Alphabet

Letter	name (IPA)	acrophonic ?	meaningful ?	common pronunciations (IPA)
a	e	yes	yes	e, æ, ə
b	bi	yes	yes	b
c	si	yes	yes	s, k
d	di	yes	no	d
e	i	yes	no	i, ɛ, ø
f	ɛf	no	no	f
g	ǰi	yes	yes	g, ǰ
h	eč	no	no	h
i	ai	yes	yes	aɪ, ɪ
j	ǰe	yes	yes	ǰ
k	ke	yes	yes	k
l	ɛl	no	?	l
m	ɛm	no	?	m
n	ɛn	no	?	n
o	o	yes	yes	o, a, ə
p	pi	yes	yes	p
q	kju	yes	yes	k
r	ar	no	yes	r
s	ɛs	yes	no	s, ƶ
t	ti	yes	yes	t, s̬
u	ju	yes	yes	u, ʌ
v	vi	yes	no	v
w	'double u'	no	?	w, or part of a vowel
x	ɛks	no	no	ks, gz
y	wai	no	yes	j, or part of a vowel
z	zi		no	z

IV
LETTER NAMES IN THE TEACHING OF READING

THE ABC METHOD

The earliest recorded procedure for teaching reading, called the alphabetic or ABC method, began with a stiff dose of letter naming and sequencing, followed (for the survivors) with letter sounding—alone, then in syllables, and then in words. Those who graduated from this regimen were then permitted to read groups of words, sentences, paragraphs, and so on, with emphasis on both oral production and meaning. In one form or another this was the approved method for teaching reading from its origin in antiquity until well into the Nineteenth Century. In America it survived as the standard method until about 1840, according to Anderson & Dearborn (1952, p. 204) or 1870, according to Huey (1908, p. 265) or the 1920's, according to Chall (1967, pp. 140 f.), and has lingered on in pockets here and there until the present day. However, for the last 50 or so years, according to Chall the accepted theory and practice has rejected the teaching of letter names and their sound values until the child has learned to read words. "...the teacher's guidebooks for the most basal-reading series suggest that letters and their sound values be taught when the child can read about 50 to 100 words by sight [pp. 140 f.]."

The reign of the ABC method was not without its detractors. In the first century of this era, Quintilian spoke against teaching letter names and the order of the letters before all the letter shapes were learned. The basis of his plaint was the belief that the memorized names detracted the child from fixing his attention on the letter forms.[4] In 1570, John Hart, the English phonetician and spelling reformer, inveighed against the evil of letter naming, claiming that learning the names of the letters hindered learning to read. Hart's objections were based upon the discrepancy between names and sounds, as demonstrated by his impassioned attack upon the letter h:

> ...for H. what reason is it to call it ache, which we speak when we would express the grief of braine, flesh or bone, and say and write headache, etc. whereas the nature and office of H. is to signifie the only putting forth of the breath, before or after the pure voyces callde vowels... [pref. IVa, cited by Danielsson, 1955].

PSYCHOLOGICAL AND PEDAGOGICAL EVIDENCE

In more recent times, Huey (1908 reissue) claimed that "...a knowledge of the letter-names will of course not be needed for reading [p. 313]." On the other hand, he felt that familiarizing a child with the letters would not interfere with his learning to read. Anderson and Dearborn (1952) who are especially critical of tasks which are meaningless for young children, claimed "Learning the letter names serves no useful purpose before the child learns to read [p. 206]."

In the Soviet Union, Elkonin (1963) found that knowledge of letter names did interfere with learning to read.

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[4] Cited by Mathews (1966), p. 11. See also Huey's brief notes on Quintilian (Huey, 1908 reissue, p. 241). The original source for both Mathews and Huey is Quintilian's Institute of Oratory. Literally translated with notes by the Rev. John Selby Watson, 2 Vols., London, 1875.

> Children of 6 to 7 years already know the names of many letters, sometimes the whole alphabet, but they cannot read and if they try to do so simply put together the names of letters. This is one of the worst habits with which many children enter school to begin learning to read and it is necessary to teach them afresh [p. 170].

In two countries where the teaching of the decoding process is felt to be reasonably successful—Austria and Israel—letter names are not taught until well after the child can discriminate the letters and attach sounds to them. About the teaching in Israel, Feitelson (1965) writes:

> Once it has become evident that a strong bond of association between any letter symbol and its exact sound value are of utmost importance when teaching reading by a phonetic method, one would think that introducing the letter names as well during the early learning stages might cause interference... Our classroom observations tended to confirm this assumption time and again [pp. 27 f.].

Aside from objections based upon the negative value of letter naming, there have also been observations that learning the letter names is difficult for some children. Hoole, for example, reported in 1660:

> This course (of teaching the letter names) we see hath been very effectual in a short time, with some more ripe witted children, but others of a slower apprehension (as the most and best commonly are) have been thus learning a whole year together (and though they have been much chid and beaten too for want of heed) could scarce tell six of their letters at twelve months' end... [p. 33].

Hoole devoted a large chunk of his Petty Schoole to the problems of teaching the letters, but none of his suggestions could compete for inventiveness with the "gingerbread method," which according to Huey was advocated by Basedow in the middle of the Eighteenth Century. Letters were baked of gingerbread, and

> As he can name he eats the letter.
> Proceeding thus with vast delight
> He spells and gnaws from left to right.[5]

Huey also cites letter-training procedures used by the early Greeks and Romans, including one in which 24 slaves were purchased as playmates for a slow-learning boy, and each given the name of a letter in the Greek alphabet.[6] If nothing else, this is evidence that even the children from higher socioeconomic levels in ancient Greece had trouble learning the names of the letters.

With the passing of the ABC method (whenever this occurred), letter naming was relegated to a subsidiary role in most methods for reading, being called upon only after the novitiate had demonstrated sufficient expertise in word identification and sounding. Nevertheless, in some reading programs in the United States and abroad, letter naming is still introduced at the beginning of reading instruction. But even where it is not formally taught in initial reading many children come to the reading task already knowing some of the letter names. In a study by Nicholson (1958) of 2,188 Boston-area first graders, done 2 weeks after the school year began, approximately 20% of the pupils could identify all of the capital letters from their names and 44% could identify 20 or more. [The mean for upper case letters was 16.6 and for lower case, 12.0. In giving names to letters shown, the means were 12.2 for capital letters and 9.0 for lower-case ones.]

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[5] Huey, 1908 reissue, p. 241. The three lines cited here are, according to Huey (op cit., p. 241 f.n.) taken from "Alma", Canto two, quoted from R. R. Reeder, "Historical Development of School Readers and of Method in Teaching Reading," Columbia University Contributions to Philosophy, Psychology, and Education, Vol. VIII, No. 2 (1900), p. 92.

[6] Huey, op cit., p. 241.

V
THE VALUE OF LETTER NAMES

Among those who favor the early introduction of letter names in reading instruction, there is little agreement on the specific benefits of this practice. One argument centers on attaching sounds to letters (Durrell, 1958); a second on the facilitation of letter discrimination (Fries, 1962), and a third on word identification (Olson, 1958; Muehl, 1962). In this section the experimental data relevant to the general area of naming will be surveyed, followed by discussions of the evidence for and against the three positions just mentioned.

NAMING AND LEARNING

Experiments on the influence of naming on learning and transfer of learning indicate either no consistent pattern, or that the stimuli, the names, the task, the ages of the subjects, and the criterion level of name learning are important variables. For motor performance, naming more often than not facilitated both learning and transfer. Gagnè and Baker (1950) gave three groups of college students varying amounts of training (8, 16, and 32 trials) in associating letters (J, V, M, S) with colored lights (two colors, two positions). During training, subjects attempted to name the letter associated with a light within two seconds after the light went on. After this period the correct letter appeared on a screen. These groups, along with a control group which received no training, then learned to press a different button for each of the four lights. For this task, the experimental groups made fewer errors and had shorter response times than the control group, but only the 32-trial group had significantly fewer errors and significantly shorter response times. Gagnè and Baker concluded that the effect of the letter association training (which included naming) was to decrease the confusability of the stimuli.

Rossman and Goss (1951) obtained similar results with college undergraduates on a list of twelve geometric figures, where nonsense syllables were learned as responses to the figures, followed by the learning of motor responses to the same figures.[7] In both this and the Gagnè and Baker experiment, the names had no relationship to the stimuli. Using a slightly different procedure, Saltz and Newman (1960) found that learning component names to a low criterion aided in a mechanical assembly problem with these components, while learning the same names to a high criterion level produced more errors than occurred when no names were learned. In this experiment the actual component names were used.

To test the Gagnè and Baker hypothesis on stimuli confusability, Robinson (1955) trained three groups of college students to identify fingerprints. One group learned no names for the prints; one group learned to call half of them "cops" and the other half "robbers;" and the third group learned separate names for each of the ten stimuli (gangster nicknames - "Moll," "Duke," etc.) The name group was not superior to either of the other groups on a same-different transfer task involving pairs of fingerprints. Spiker (1956) performed a similar experiment using figures composed of different numbers of concentric rings, with the number of rings in each figure serving as a label (five, seven). One group of children was taught the names for the stimuli, while a second group received visual discrimination training, but no names. In a delayed reaction task which followed, the younger children (3 years 9 months to 4 years 9 months) who received name training made significantly fewer errors than the

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[7] This study may have been contaminated somewhat by the use of electrical shocks.

young children who did not receive name training; but in the older group (4/10 to 5/6), there was no difference between the two groups. Spiker concluded that the names helped the subjects produce representations for the stimuli during the delay period, and that pretraining on naming had no effect on the older children because they tended to invent names for the stimuli on their own.

Ranken (1963) hypothesized that naming would facilitate short term retention of items or sequences of items, but would result in the loss or distortion of figural information. To test this, he trained one group of college students to assign animal names to novel geometric shapes (the relationship of the name to the shape was pointed out), while a second group received discrimination training on the same shapes but no names. Then, half of the subjects from each group did a jigsaw puzzle task with the same stimuli while the other half did a memory task. A significant interaction was found between the effects of names and the type of problem; the naming subjects did better on the memory task, but worse on the jigsaw puzzle task.

ATTACHING SOUND TO LETTERS

The most plausible value for early letter naming—if a value exists—would be in facilitating the attachment of sounds to letters. Durrell (1958) among others, makes this claim:

> Since most letter names contain the sounds of the letters, the ability to name letters should aid in establishing relationships between the phonemes of the spoken word and the printed form of the word [p. 5].

Yet surprisingly there are no experimental data for evaluating this claim. Anecdotal reports from many areas, furthermore, including England, Austria, and Israel, indicate that the letter names are not as effective mnemonics for letter sounds as are picturable objects that produce the sound in question. [Names of objects that contain the desired sound are also found to be more effective than letter names, but not as valuable as sound-producing objects.]

If letter names actually aid in attaching sounds to letters, then two different processes could be posited to explain this facilitation. In the first, the letter name is a mediator between the output of the visual recognition process and the stored phonetic (or articulatory) pattern. This assumes that strong linkages exist between the name store and the visual store, and between the name store and the phonological store, but relatively weak linkages between the visual and phonological stores. Segmentation of the name does not necessarily have to take place in this procedure, nor does the name necessarily have to contain the sound, although this might aid in establishing a stronger name-sound linkage.

In the second scheme, the sound for the letter is extracted from the letter name itself through segmentation (if necessary) of the name—a procedure which is, according to Zhurova's work (1964) quite difficult for many 6-year-old children, especially if the sound is in word-final position as it is for the names for f, l, m, n, r, s, and x. The child must decide for each letter name whether the sound he wants is the first one in the name, the last, or not present at all as in the names for h, w, and y. [This might be a fairly easy decision, since for all letter names which contain an appropriate sound, a single rule applies: If there are two or more sounds in the name, drop the vowel sound.[8]] But for sound extraction to be maximally utilized in the teaching of reading, the long vowel sounds must be introduced before the short vowel sounds, and the soft pronunciations of c and g (/s/, /ǰ/) before the hard ones (/k/, /g/)—and this is contrary to the sequencing found in almost all present-day reading programs.

LETTER DISCRIMINATION

In Step 1 of Stage 1 in Fries' (1962) system for teaching reading, pupils are to develop an ability "to identify and distinguish the graphic shapes of the letters;" this is to be learned to a criterion of "100% accuracy" as demonstrated by "instant and automatic responses of recognition." This, according to Fries "...does not necessarily mean attaching the conventional names to these distinctive shapes, although the names are very useful as means of checking the identification responses [p. 124]." Thus Fries makes no suggestion on whether to teach the letter names or not at this stage, but claims that if they are learned they are useful for checking the letter identification response. Yet it is not apparent from the remainder of Fries' instructions for teaching reading where

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[8]The pronunciation of "long u" - /ju/ - must be treated as a unit for this rule to apply to the names for q and u.

this identification response is to occur, since the only letter-naming task he suggests requires same-different responses to pairs of graphemic stimuli. What might be intended is that after the same-different response is made, names could then be attached to each stimulus and the name patterns compared as a check on the first response. But this is both an impractical procedure and beyond the cognitive abilities of most first grade entrants.

From the experiments reviewed earlier on tasks similar to letter naming, it might be argued that names would aid letter discrimination either by reducing the psychological similarity of the forms (Gagnè & Baker, 1950), or by providing a more retrievable representation of the letter than its figural representation provides (Spiker, 1956). But these arguments become academic when it is observed that most children at the beginning of first grade can match letters of the alphabet successfully, yet can, on the average, name only about one-third of them. Nicholson (1958), for example, found that for 2,188 children tested at the beginning of first grade in the Boston area, the mean number of lower-case letters matched successfully was 24.48, while at the same time the mean for naming lower-case letters for the same population was 9.00. Letter matching was tested by showing a test letter simultaneously with five other letters placed to its right on a sheet of paper. The child was instructed to circle the letter among the five which was like the test letter.

When the test letter was shown for only five seconds and then removed before the multiple choice selections were exposed, the mean for correct responses was still relatively high—22.12. Similar results for 3- to 5-year old children were found by Calfee, Chapman, and Venezky (in press), but with a smaller population. Consequently, teaching the letter names at the beginning of reading instruction could have, at best, a marginal effect upon letter discrimination.

WORD IDENTIFICATION

Both laboratory and class-room procedures have been used in attempts to evaluate the effect of letter-name knowledge on word recognition. In a laboratory experiment (Muehl, 1962), a word recognition task was constructed from nonsense letter-string stimuli and concrete noun responses, and tested on a small group of kindergarten children. In the class-room evaluation (Olson, 1958), a large group of children were tested at various times during their first year of reading instruction on various reading skills, including letter naming and word recognition abilities. Then, attempts were made to establish a relationship between these two factors. The results of the two approaches are contradictory.

LABORATORY APPROACH

Meuhl (1962) hypothesized:

> If...(the)...verbal labeling process is the basis for mediating word discrimination and name association, then providing children with a consistent set of labels in the form of letter names should facilitate this discrimination and association process...[p. 181].

To test this hypothesis, he trained two groups of kindergartners on attaching names to letters (Task I) and then tested them on the ability to attach common names (boat, sled, cake) to three-letter nonsense strings (Task II). One group learned names for three letters which were relevant for discriminating the nonsense strings and one group learned letters and names which were irrelevant.

The response data for Task II showed no significant difference between the relevant and irrelevant groups for correct responses, although there was a significant difference for omissions. From these results Muehl concluded that learning letter names interfered with the subsequent learning to associate picture names with nonsense letter strings containing these same letters.[9] Aside from the questionable conclusion, the stimulus items used by Muehl deviate from what is found in a true word recognition task. The stimuli were three-letter strings: yml, yfl, ygl and yjl, yul, ydl, where only the middle letter was necessary for discrimination. According to word recognition studies by Edelman (1963) and Marchbanks and Levin (1965), letters in the middle of a word are used as cues in word recognition much less frequently than letters at the beginning or at the end. This may account for the failure of any group to achieve even 50% correct responses on Task II. [If we assume that the children learned the three responses—boat, sled, cake—on the familiarization trials, then for

[9] On the pretraining of letter names, 41 of 87 children failed to reach criterion.

the 16 trials in Task II, a mean of 16 would represent blind guessing. The actual means varied from 17.81 to 22.61 which indicates that very little learning took place for any group.] In addition, labels for only one of the three-letter positions were learned by the relevant group, yet in reading, a person who knows letter names would have a label for each letter in a word. What effect this would have on Muehl's experiment remains to be tested. Arguments for either greater facilitation or greater confusion seem equally valid.

What significance to attach to the omission data is difficult to determine. Muehl attributes it to competitive blocking: the letter name is the dominant response to the critical stimulus element and therefore must be displaced by the word-name response. This argument would be valid if the irrelevant group had made significantly more correct responses than the relevant group—but they didn't, indicating that neither group was overly attentive to the critical stimuli.

CLASSROOM EVALUATION

In a study by Olson (1958) of the reading and reading-related skills of 1,172 first grade children, letter-naming ability in September correlated highly with oral reading ability in February. Furthermore, it was found that of the 119 children from this group who could not name 20 or more letters in February, only nine could identify 70 or more words in a word recognition task. From these data, Olson (1958) concluded: "While a knowledge of letter names does not always assure high reading achievement, the lack of that knowledge assures low reading achievement. Apparently a child must have a knowledge of letter names long before he masters 75 words [p. 35]." But there is no evidence from this study that lack of letter-name knowledge caused the word recognition deficit. Both, for example, might result from a poor attendance record. Nevertheless, it is puzzling that letter-naming ability at the end of kindergarten or in September of first grade has been found by a number of studies to be one of the best predictors of reading success not only at the end of first grade, but as late as third grade.[10]

Two possible explanations for this relationship are plausible. The first is that letter-name knowledge itself facilitates the acquisition of literacy, and therefore the child who comes to the reading task with this ability is already one step ahead in the game. If this can be shown to be true (although none of the evidence cited so far indicates that it is) then the obvious conclusion is that all children should be taught letter names in kindergarten or before. But this brings up a second question: why do some children know letter names when they begin school and others not? Solely because of differences in home-environment? Or do some children who receive continual encouragement and training for this task in the home still fail to acquire the ability? At this point in time we know almost nothing about the learning of letter names, other than the general developmental pattern during reading instruction. The statements quoted earlier in this paper on the learning of letter names in previous centuries indicate that this has always been a difficult task for many children, even those from the higher socioeconomic levels.

The second and more plausible explanation is that letter-name knowledge at the beginning of first grade reflects the presence of a variety of factors which themselves are important for learning to read; e.g., level of cognitive development, emotional stability, attention span, and proper interaction with adults outside of school. By this reasoning, concentrated drilling on letter names for children who lack any of these factors will not

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[10] While letter naming is apparently one of the best single predictors of reading success, and clearly superior to either chronological age or I.Q. in this role, its absolute value varies widely from study to study. Wilson and Flemming (1938), working with 25 high-I.Q. children (mean = 120.6) in the Horace Mann school in New York, found that the rank-order correlation between naming lower-case letters in the fall of grade one and reading ability the following spring (as measured by standard reading tests) was .594. On the other hand, DeHirsch, Jansky, and Langford (1966) found that for children with I.Q.'s greater than 106, the product-moment correlation between letter-naming ability in kindergarten and reading ability in Grade 2 was .37. It is difficult, however, to find two studies that tested the same age-levels and employed the same testing instruments. For a review of these studies, see Chall, 1967, pp. 140 ff., and Barrett, 1965, passim.

lead to a major improvement in reading ability, even if the letter names are acquired.

To test this hypothesis, we need to know the characteristics of children who enter school with high letter-naming ability. Once the significant factors for this group are determined, then we should test whether or not these factors as a group are better predictors of reading success than letter-naming ability by itself.

VI
CONCLUSIONS

The most important problems which remain to be investigated concern the potential effect of letter-name knowledge on either word recognition or on attaching sounds to letters, and why letter-name knowledge prior to the beginning of formal reading instruction is a good predictor of later reading success. If it can be shown that for beginning reading, letter-name knowledge has a negative influence upon word recognition or upon attaching sounds to letters, then the implications of these results are clear: don't teach letter names in beginning reading instruction and discourage parents, nursery school teachers, and the producers of Sesame Street from doing so.

If, on the other hand, a positive influence can be shown, the implications are not as certain, since more efficient techniques for achieving the same result may be available. For example, letter names may be found to facilitate attaching sounds to letters but, as stated earlier, sounds that objects make appear to be more efficient aids for teaching this same skill.

On letter names as predictors of later reading success, we know very little at present. The first set of data we would like to see are those that would show for which age, I.Q. and socioeconomic levels this relationship is valid. Then, we would need to explore the source of the relationship—Is it an indicator of more basic skills, or does it result from the intrinsic value of the names themselves? But whatever value is found experimentally for letter-name knowledge, be it positive or negative, it should be remembered that letter names are not only efficient labels for the letters, but also are an integral and inseparable component in the popular concept of reading instruction.

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